

Second Readers-writers Problem

- 1st RW problem: readers-preference.
 - A writer can get into the critical sections until there is no request from readers.
- 2nd RW problem: writers-preference.
 - A writer will no longer wait the following readers.

Second Readers-writers Problem

integer *readcount*, *writecount* ; (initial value = 0)
semaphore *mutex 1*, *mutex 2*, *mutex 3*, *w*, *r* ; (initial value = 1)

READER

P(mutex 3) ;
 P(r) ;
 P(mutex 1) ;
 readcount = readcount + 1 ;
 if *readcount = 1* **then** *P(w)* ;
 V(mutex 1) ;
 V(r) ;
V(mutex 3) ;

...

reading is done

...

P(mutex 1) ;
readcount := readcount - 1 ;
if *readcount = 0* **then** *V(w)* ;
V(mutex 1) ;

WRITER

P(mutex 2) ;
writecount := writecount + 1 ;
if *writecount = 1* **then** *P(r)* ;
V(mutex 2) ;
P(w) ;

...

writing is performed

...

V(w) ;
P(mutex 2) ;
writecount := writecount - 1 ;
if *writecount = 0* **then** *V(r)* ;
V(mutex 2) ;